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I, LEANNE MYNOTT, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 3258 for a patent by WEEKS PEACOCK QUALITY HOMES PTY LTD filed on 05 October 1999.

WITNESS my hand this
Third day of November 2000

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AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

APPLICANT: WEEKS PEACOCK QUALITY HOMES PTY LTD
NUMBER:
FILING DATE:

Invention Title: METHOD OF CRUSHING A TUBE

The invention is described in the following statement:-

"METHOD OF CRUSHING A TUBE"TECHNICAL FIELD

5 This invention relates to a method of crushing a tube.

10 The invention has particular, but not exclusive, application in preparing the end of a tube for connection with another member via a conventional fixing element such as a bolt.

15 The invention has particular utility in crushing the end of a web. As used herein "web" is used to refer to a strut or bracing element which extends between the upper and lower chord of a roof truss.

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DISCLOSURE OF INVENTION

According to one aspect the invention resides in a method of crushing a tube, the method including:-

20 pressing together opposed portions of the tube such that the opposed portions abut to define a land which is adapted to receive a fixing element, wherein opposed lateral portions of the tube adjacent the land do not abut but rather define sub-tubes which straddle the land
25 and which extend lengthwise of the tube.

30 According to another aspect the invention resides in a method of forming a flattened region in a tube, the method including pressing together opposed portions of the tube, whilst not pressing together lateral opposed portions of the tube.

35 According to another aspect the invention resides in a method of forming a flattened region in a tube, the method including selectively pinching opposed portions of the tube together such that the opposed portions of the tubes abut at a central location and such that lateral sub-tubes are defined which straddle the pinched portion.

According to another aspect the invention resides in a method of forming a land on a tube, the method

including:-

compressing opposed peripheral portions into abutment to define the land, such that lateral ribs extend along either side of the land, the ribs being 5 formed by the portions of the tube adjacent the abutting portions which define the land.

According to another aspect the invention resides in a method of crushing a tube, the method including:-

crushing the tube between a pair of opposed crush 10 members, at least one of the crush members being substantially narrower than the corresponding dimension of the tube and engaging the tube in a substantially central location whereby a central crushed region is defined between a pair of lateral non-crushed regions, 15 said crushed region being adapted to receive a fixing element.

According to another aspect the invention resides in a tube including a crushed region wherein opposed portions of the tube have been crushed together to abut 20 and define a land which is adapted to receive a fixing element, the tube further including longitudinally extending non-crushed regions located laterally either side of the crushed region.

According to another aspect the invention resides in 25 a tube including:-

a land at an end of the tube formed by compressing opposed peripheral portions of the tube into abutment, and

ribs extending along either side of the land and 30 formed by the portions of the tubular member adjacent the abutting peripheral portions.

BRIEF DESCRIPTION OF DRAWINGS

35 Reference will now be made to the accompanying Figures which illustrate preferred embodiment(s) of the invention and in which:-

FIG 1 is a plan view of a tube having a crushed or

flattened end;

FIG 2 is a frontal elevation of the tube of FIG 1;
and

FIG 3 is a left side elevation of the tube of FIG 1.

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BEST MODE

Referring firstly to FIG 1, there is shown in plan a metallic tube 10. Tube 10 may be, for example, a web 10 which in use extends between the upper and lower chord of a roof truss.

Tube 10 is originally formed from a planar sheet of material which is folded to define the tube with an overlapping longitudinal seam 12 as best shown in FIG 2.

15 The seam may be welded, riveted, glued or fixed by any known means. However, the preferred embodiment utilises an integral stitching method which swages together material in the overlapping seam region.

With reference to FIG 2, it will be noted that the 20 end of the tube is tapered in frontal elevation. Furthermore, referring to FIG 1, a substantially triangular region 14 is more aggressively tapered and is pressed together into an abutting relationship adjacent the end of the tube.

25 Referring to FIG 3, it will be noted that in a central region 18 the opposed peripheral portions of the tube are crushed together so as to be abutting and planar. In contrast, open sections 20 are defined either side of the central crushed region 18. Each of the open 30 sections 20 defines a sub-tube or rib which extends longitudinally of the tube 10 either side of the central crushed region 18.

The central crushed region 18 is adapted to receive a fixing element by virtue of one or more punched holes 35 16. As shown in FIG 3, the punched hole 16 receives a fixing element in the form of a nut and bolt arrangement 22.

The central crushed region 18 provides a flattened

land which is adapted to receive a conventional fixing element such as nut and bolt arrangement 22. In contrast, the lateral non-crushed regions 20 provide additional structural strength as compared to a tube in 5 which the entire end of the tube is pinched into an abutting relationship.

It will, of course, be realised that the above has been given by way of illustrative example(s) of the invention. Any variations, modifications, or omissions, 10 as would be apparent to persons skilled in the art, are deemed to fall within the broad scope of this invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A method of crushing a tube, the method including:-
pressing together opposed portions of the tube such
5 that the opposed portions abut to define a land which is
adapted to receive a fixing element, wherein opposed
lateral portions of the tube adjacent the land do not
abut but rather define sub-tubes which straddle the land
and which extend lengthwise of the tube.
10
2. A method of forming a flattened region in a tube, the
method including pressing together opposed portions of
the tube, whilst not pressing together lateral opposed
portions of the tube.
15
3. A method of forming a flattened region in a tube, the
method including selectively pinching opposed portions of
the tube together such that the opposed portions of the
tubes abut at a central location and such that lateral
20 sub-tubes are defined which straddle the pinched portion.
4. A method of forming a land on a tube, the method
including:-
compressing opposed peripheral portions into
25 abutment to define the land, such that lateral ribs
extend along either side of the land, the ribs being
formed by the portions of the tube adjacent the abutting
portions which define the land.
30
5. A method of crushing a tube, the method including:-
crushing the tube between a pair of opposed crush
members, at least one of the crush members being
substantially narrower than the corresponding dimension
35 of the tube and engaging the tube in a substantially
central location whereby a central crushed region is
defined between a pair of lateral non-crushed regions,
said crushed region being adapted to receive a fixing
element.

6. A tube formed according to the method of any one of claims 1 to 5.

7. A tube including a crushed region wherein opposed 5 portions of the tube have been crushed together to abut and define a land which is adapted to receive a fixing element, the tube further including longitudinally extending non-crushed regions located laterally either side of the crushed region.

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8. A tube including:-

a land at an end of the tube formed by compressing opposed peripheral portions of the tube into abutment, and

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ribs extending along either side of the land and formed by the portions of the tubular member adjacent the abutting peripheral portions.

ABSTRACT

A tube (10) includes a central crushed region (18) for receiving a fixing element (22) and lateral non-crushed regions (20) disposed either side of the crushed region (18) which provide additional structural strength to the tube.

